EXECUTIVE SUMMARY

The Pool 11 Islands Habitat Rehabilitation and Enhancement Project (HREP) is located near Dubuque, Iowa, in the lower end of Pool 11 between Upper Mississippi River Miles (RM) 583.3 and 593.0. The project stretches from Lock and Dam 11 upstream to Potosi Creek in Dubuque County, Iowa, and Grant County, Wisconsin. The project area roughly encompasses the aquatic and terrestrial lands between the rail lines that parallel either side of the Mississippi River. All project lands are in Federal ownership and are managed by the U.S. Fish and Wildlife Service as part of the Upper Mississippi River Wildlife and Fish Refuge.

The Pool 11 Islands area is losing valuable backwater areas to siltation, and aquatic vegetation is declining due to turbidity associated with wind-induced resuspension of bottom sediments across the large, open-water reaches. These decreases have led to the loss of both terrestrial and aquatic habitats, protected littoral zones associated with islands, and protected deep-water habitats. Significant opportunities are available for preserving, enhancing, and improving habitat for migratory birds, fisheries, aquatic mammals, and endangered species by reducing backwater sedimentation, increasing off-channel depths, and reducing sediment resuspension.

The goals of the proposed project are to restore and protect aquatic and backwater habitats. The objectives identified to meet these goals were: (1) reduce resuspension of sediments; (2) create areas with flow and depth diversity; (3) increase abundance and diversity of aquatic plants; (4) enhance nesting and brooding habitat for migratory birds; (5) reduce sedimentation in backwaters; (6) provide reliable food resources for migratory birds and resident wildlife; (7) reduce island erosion; and (8) create off-channel deep-water areas to provide year-round habitat for centrarchids and associated species. The following four enhancement areas and their associated plans were considered to achieve the project goals and objectives:

1. Sunfish Lake

    - No action.
    - Construct an 1800-m sediment deflection embankment and mechanically dredge a 6.5-ha system of channels.
    - Construct a 1500-m sediment deflection embankment and mechanically/hydraulically dredge an 11.5-ha system of channels.

2. Sinnippee Creek

    - No action.
    - Construct 1265 m of sediment deflection embankment and island using adjacent mechanically dredged material.

3. Mud Lake/Zollicoffer Slough

- No action.
- Construct a 1590-m sediment deflection embankment, 1000 m of deflection islands, and mechanically dredge 6.2 ha of channels adjacent to the embankment/islands and into Mud Lake and Zollicoffer Slough.
- Construct a 3038-m sediment deflection embankment and mechanically dredge 8.8 ha of channels adjacent to the embankment and into Mud Lake and Zollicoffer Slough.
- Construct a 4200-m sediment deflection embankment and mechanically/ hydraulically dredge 12.5 ha of channels adjacent to the embankment and into Mud Lake and Zollicoffer Slough.

4. Island Construction

- No action.
- Build 4 small islands totaling 315 m in length and a 2-ha boulder field.
- Build 6 small islands totaling 470 m in length and a 2-ha boulder field.
- Build 4 medium islands totaling 1000 m in length and a 2-ha boulder field.
- Build 5 medium islands totaling 1930 m in length and a 2-ha boulder field.
- Build 6 medium islands totaling 1500 m in length and a 2-ha boulder field.
- Build 4 large islands totaling 2000 m in length and a 2-ha boulder field.
- Build 6 large islands totaling 3000 m in length and a 2-ha boulder field.

Evaluation of the enhancement area's construction options was accomplished through application of Habitat Evaluation Procedures (HEP). HEP was developed by the U.S. Fish and Wildlife Service as a method to rate the quality and quantity of habitat impacted by land and water development projects. HEP uses a Habitat Suitability Index (HSI) to measure how suitable a habitat is for a particular species when compared to the optimum habitat. HEP quantifies habitat output in the form of habitat units (HUs) that are combined with project cost data and functional life expectancy to compare the construction options of the proposed enhancement areas. This incremental analysis identifies which combinations of construction options would be cost efficient and cost effective.

The recommended plan (shown on Figure ES-1) includes constructing a 1500-m sediment deflection embankment and mechanically/hydraulically dredging an 11.5-ha system of channels at Sunfish Lake; no action at Sinnippee Creek; constructing a 3038-m sediment deflection embankment and mechanically dredging 8.8 ha of channels adjacent to the embankment at Mud Lake/Zollicoffer Slough; and no action for the Island Construction enhancement area.

Constructing sediment deflection embankments would restore and enhance backwater habitat by reducing sedimentation and protecting against wind-induced wave forces that cause resuspension of sediments. Dredging channels behind the deflection embankments

would create overwintering habitat and increase aquatic diversity, while also providing material to construct the embankments.

Implementation of the recommended plan would increase the quality and quantity of preferred habitat at this location. The project outputs meet site management goals and objectives and support the overall goals and objectives of the Upper Mississippi River System-Environmental Management Program (UMRS-EMP), the North American Waterfowl Management Plan, and the Partners in Flight program.

The U.S. Army Corps of Engineers will be responsible for the Federal share of any mutually agreed upon rehabilitation of the project that exceeds the annual operation and maintenance requirements identified in the final Definite Project Report (DPR) and that is needed as a result of specific storm or flood events. Rehabilitation of the project is considered to be reconstructive work that cannot be accurately estimated at this time.

Section 906(e) of the 1986 Water Resources Development Act (WRDA) specifies that first cost funding for enhancement features "located on lands managed as a national wildlife refuge" will be 100 percent Federal. All Pool 11 Islands project features will be located on federally owned lands managed through a cooperative agreement with the U.S. Fish and Wildlife Service, the Federal project sponsor. Per Section 107(b) of the 1992 WRDA, project operation and maintenance at an estimated average annual cost of $9,960 will be accomplished by the U.S. Fish and Wildlife Service. The Iowa Department of Natural Resources and the Wisconsin Department of Natural Resources are the non-Federal project sponsors.

The District Engineer has reviewed the project outputs and determined that the implementation of the selected plan is justified and in the Federal interest. Therefore, the Rock Island District Engineer recommends construction approval for the Pool 11 Islands Habitat Rehabilitation and Enhancement project at an estimated Federal expense of $6,328,409. The total Federal cost estimate, including general design and construction management, is $8,558,617.

UMRS EMP

Figure ES-1
POOL 11 ISLANDS
Project Location Map